

Claims

1. Push-piece crown control device for a watch, comprising:

- a support part (1) that can be attached to the watchcase (3) or may consist of the watchcase (3) itself, this support part (1) having an opening,
 - a part (10) entraining rotation that can be connected with the movement (M) of the watch in order to control a first and a second function of the watch,
 - a crown (4) comprising a head (5) and an extension (6) integral with the head (5) and mounted into said opening so as to be mobile relative to the support part (1), said extension (6) being able to cooperate with a control element (25) for a third function of the watch that is located inside the watch-case (3),
 - coupling means (13, 14, 15, 16) acting so as to make the entraining part (10) and the extension (6) of crown (4) move together in rotation as well as in translation in the direction of pulling, crown (4) being able when the watch is fitted with the device, to occupy a first stable axial position and a second stable axial position where it is pulled, positions in which the rotation of the entraining part (10) imparted by crown (4) controls the first and second function, respectively, the crown (4) being able in addition to be pushed independently of the entraining part (10) from its first axial position up to an axial position of activation of the control element (25), and
 - first elastic means (17) arranged between the entraining part (10) and the crown's head (5) and exerting a force that suffices to overcome the resistance offered by the entraining part (10) during the change from the second to the first axial position of the crown (4),
- characterised in that it comprises in addition:
- second elastic means (18) arranged between the support part (1) and the crown's head (5), and able to be compressed during the change of crown (4) from its first axial position to the position of activation of the control element (25), in order to return the crown (4) to its first axial position once the stress exerted by pushing the crown (4) has ceased.

2. Device according to claim 1, characterised in that the force exerted by the second elastic means (18) is larger than that exerted by the first elastic means (17).
3. Device according to claim 1 or 2, characterised in that the first and second elastic means consist of a first (17) and second (18) axial spring, respectively.
4. Device according to any of claims 1 to 3, characterised in that the support part (1) is a pipe intended to be fixed at the watchcase (3).
5. Device according to claim 4, characterised in that additionally it comprises at least one annular gasket (24) compressed between an inner side face of the crown's head (5) and the outside of the support pipe (1).
6. Device according to any of claims 1 to 5, characterised in that the extension (6) of the crown (4) is tubular and axial, and in that the entraining part (10) is mounted inside this extension.
7. Device according to claim 6, characterised in that the extension (6) comprises a first tube (7) integral with the crown's head (5) and a second tube (9) connected with the first tube (7).
8. Device according to any of claims 1 to 7, characterised in that the coupling means comprise a segment of outer polygonal cross section (13) of the entraining part (10) and a segment of corresponding inner polygonal cross section (14) of the extension (6) of crown (4) for entraining rotation of the entraining part (10), as well as an outer shoulder (15) of the entraining part (10) and a corresponding inner shoulder (16) of the extension (6) of crown (4) for entraining translation in the direction of pulling.
9. Device according to any of claims 1 to 8, characterised in that the entraining part (10) is a cylinder open at one end in order to receive an end of an entraining stem (12) of the watch.

10. Device according to any of claims 1 to 9, characterised in that the first and second function are a winding function and a setting function, respectively.
11. Device according to any of claims 1 to 10, characterised in that the crown's head (5) comprises a formation (26) intended to cooperate with a corresponding formation (27) provided in an opening (28) of the watchcase (3) in order to admit a change of the crown (4) from the first axial position to the position of activation of the control element (25), only when said formations (26, 27) are aligned.
12. Watch provided with a control device according to any of claims 1 to 11.